COMPACT MIXER

MM 1805/1805X

USER'S MANUAL

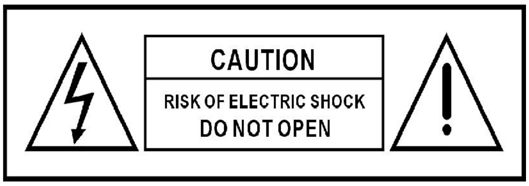
PHONIC
WWW.PHONIC.COM

SAFETY PRECAUTIONS!

WARNING - TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

Do not allow water or liquid to be spilled into this unit. If the unit has been exposed to rain or liquids, please unplug the power cord immediately from the outlet (with DRY HANDS) and get a qualified service technician to check it. Keep this unit away from heat sources such as radiators, heat registers, stoves, etc.

The unit contains no user-serviceable parts. Refer all servicing to a qualified service engineer through a Phonic dealer.



This triangle, which appears on your component, alerts you to the presence of uninsulated dangerous voltage inside the enclosure that may be sufficient to constitute a risk of shock.

This triangle, which appears on your component, alerts you to important operating and maintenance instructions in this accompanying literature.

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL.

Keep this unit clean by using a soft dry brush and occasionally wiping it with a damp cloth. Do not use any other solvents, which may cause damage to paint or plastic parts. Regular care and inspection will be rewarded by a long life and maximum reliability.

Your Phonic MM1805 / MM1805X was carefully packed in the factory and the packing box was designed to protect the unit from rough handling. We recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred in transportation.

If the unit is damaged: ***Notify your dealer and the shipping company immediately.*** Claims for damage or replacement may not be granted if it is not reported properly or in a timely manner.

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Phonic reserves the right to improve or alter any information suppied within this document without prior notice.

1. INTRODUCTION

Congratulations on your purchase of the MM 1805(X) Mixer with built-in 255 programmed digital effects(MM 1805X only). The MM 1805(X) is built into a rugged construction, which is ideal for both touring and fixed PA installations. In order to get the best performance of the MM 1805(X), please read this owner manual carefully, and look after it. If you ignore the manual and directly jump into the unknown, there Ssomething might happen and makes the fool out of you. Please at least find out something different and check if you are familiar with the other mixer.

FEATURES

- 6 mono input channels are able to accept a wide range of Microphone and Line level from separate input sockets.
- 4 stereo inputs feature the 2 band EQ and other same control functions as mono inputs.
- Additional 2T return inputs, for CD playback or link to submixer.
- Built-in 7-band graphic equalizer offers precise correction of the output signal if required.
- Individual +48V phantom power dip-switch on 1-6 channel with global switch at master section.
- Built-in digital effect with 255 programs allows the user to add reverberation or specific effect to vocals or instrumental sounds (MM 1805X only).

2. GETTING STARTED

1.Check the AC voltage before connecting the AC plug. This product is equipped with a 3-wire grounding type plug; this is a safety feature and should not be defeated. Proper grounding is a must practice to prevent electric shock hazard to the operator, the microphone user, and the musicians who wired to this unit.

2.Before switch on the main power, keep all the output fader all the way down to prevent damaging or excessive noise caused by bad level adjustment, wrong wiring, defective cables, or bad connection.

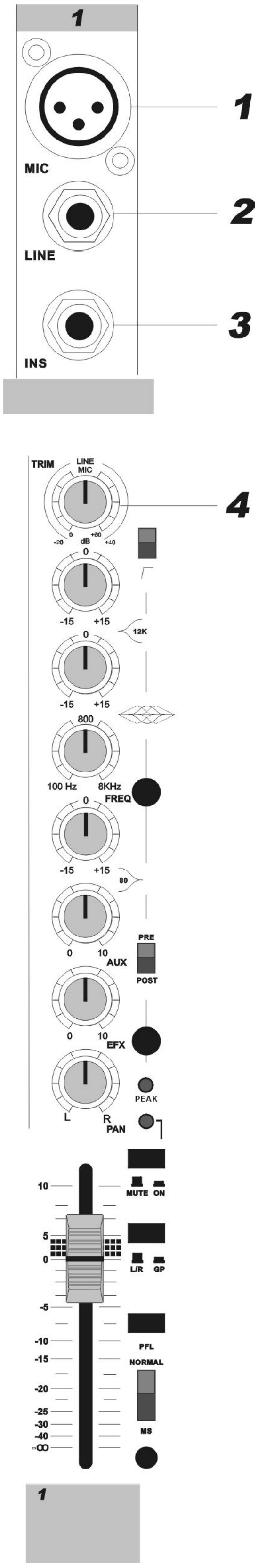
3.Always turn on the MM1805(X) before the power amplifier, turn off the amplifier before the MM 1805(X).

4.Always turn off the power before connecting and disconnecting the unit.

5.Never use solvents to clean the unit. Clean with a soft, dry cloth.

2.1 Front-Panel Description

2.1.1 MONO Channel 1~6



1. MIC (CH1~6)

The Microphone is via a standard female XLR-3 connector. Please use only professional low impedance microphone and proper wired cable for best result.

48V Phantom Power Slide-Switch (CH1~6 on the back panel)
+48V Phantom Power and slide- switch on/off is available on each microphone input channel. All faders (Group 1, Group 2, Mono, ST and CH1~14) should be all the way down when switching on phantom power, in order to prevent excessive noise to stage monitor speakers and main speakers; Phantom powered microphone should not be plugged in with the +48V switched on.

2. LINE (CH1~6)

Line input with 1/4   phone jack socket. Plug in this jack socket will automatically change the input trim from MIC to LINE and switch to different TRIM accordingly; any connection to the Mic input should be unplugged when the Line input is in use.

3. INS

The INSERT is a break point in the input channel signal path. It allows the signal to be taken out from the mixer, through an external piece of equipment such as a compressor and then back to mixer to continue the final mix output.

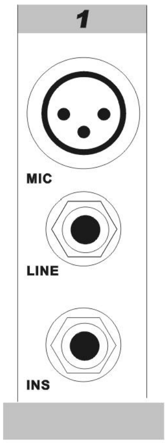
Standard connection as tip-ring-sleeve for send-return-ground.

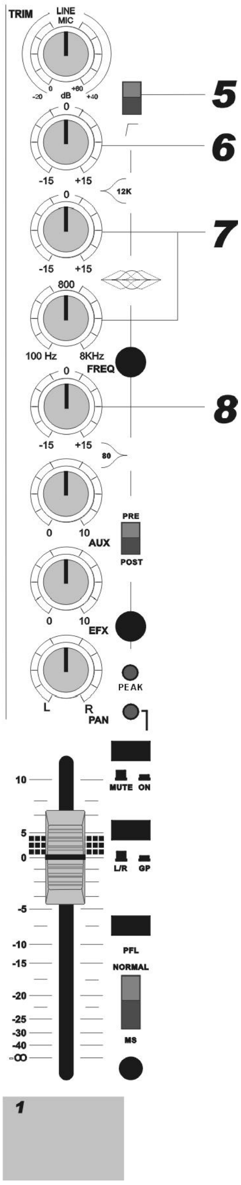
Properly utilize the outboard gears is the general practice for the working pro. Please check out Phonic lines of signal processor products; such as PCL 3200, PCL 4200 .

4. TRIM

This rotary knob adjusts the channel signal level. Too high, the signal will distort as it overloads the channel. Too low, the level of back hiss will be more noticeable and you may not be able to get enough signal level to the output of the mixer. Proper trim setting allows the mixer to work in the best operating level, adjust the trim when signal presents to the highest level without triggering the peak LED. That is the most appropriate position.

This trim has two kinds of indication to suit mic or line input, when you use mic input, please read inside ring from 0~+60 dB, if you use line input, please read outside ring from -20~+40dB.





5. Low Cut (CH1~6 only)

Slide down the dip-switch, insert the 18dB per octave 75Hz low cut filter in the signal path. This low cut filter is useful on live vocals to reduce stage rumble or“popping” from Mics. It can also be used for cut off low frequency hum.

6. HIGH

Each input channel except 7~14 of the MM 1805(X) has a three-band swept EQ. Turn to the right to boost high frequency, adding crispness to cymbals, vocals and electronic instruments. Turn to the left to cut this frequency, reducing sibilance or hiss. The control has a shelving response that gives 15dB of boost or cut at 12KHZ.

7. MID

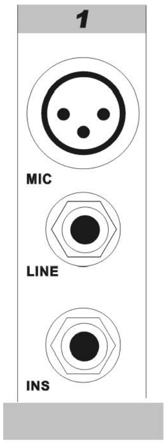
These two knobs work together as a MID frequency EQ section. The upper knob provides 15dB of boost and cut, just like the HF EQ knob, but frequency at which this occurs can be set by the lower knob over the range of 100Hz to 8KHz. This allows some truly improvement of the signal in live performance, because the mid band covers the range of most vocals. Listen carefully when you use this controls together to find how particular characteristics of vocal or guitar signal can be enhanced or reduced .Set the upper knob in the “0” position when not in use.

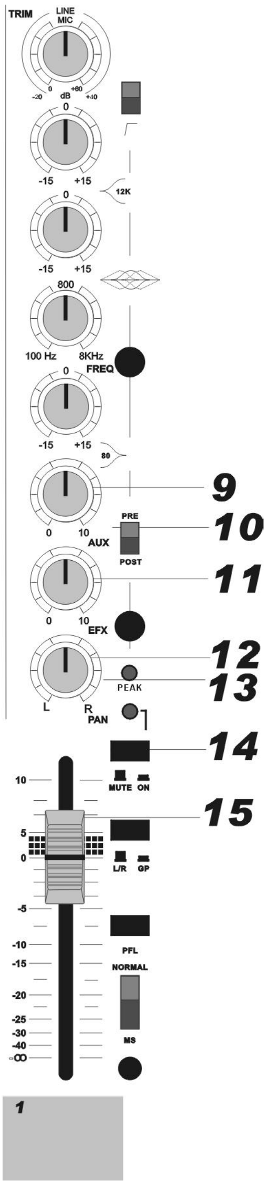
8. LOW

This control has shelving response that giving 15dB of boost or cut at 80Hz. Adding warmth to vocals or extra punch to guitars, drums and synths by turning to the right. Turn to the left to reduce stage rumble, hum or to improve a mushy sound.

These equalizers are designed to suit different room acoustics, feedback control and improve the live PA sound. No amount of equalization will correct the frequency response curve of a poor loudspeaker. Always begin with all control in the “0” position and avoid excessively cutting/boosting large segments of the peculiar frequency, which would limit the system dynamic range or increase the possibility of the unpleasant feedback sound.

To make sound more impressive, dynamic process is necessary. Channel inserts are designed to add-on a compressor, limiter or gate. Please refer to Phonic PCL-3200 for further information.





9. AUX

This rotary fader sends out the channel signal to **AUX** bus. The signal can be pre-fader so that the aux send will not be affected by the fader, which is suitable for foldback or monitor; it can be Post-fader, which is suitable for effects signal that fade up and fade down with the fader. PRE or POST aux signal is controlled by a slide-switch (10).

10. AUX PRE/POST SWITCH

The switch allow user to set the AUX send at per-fader or post-fader operation .

11. EFX

This rotary fader feeds the channel signal to the built-in digital effect and main effect mix out as well. The signal is post fader. This is very helpful to simulataneously adjust the level of the processed and direct signal.

12. PAN

This control sets the amount of the channel signal feeding the left and right mix bus, allowing you to locate the source smoothly across the stereo image. When the control is turned fully right or left, you are able to route the signal to either left or right output.

13. Peak LED Indicator

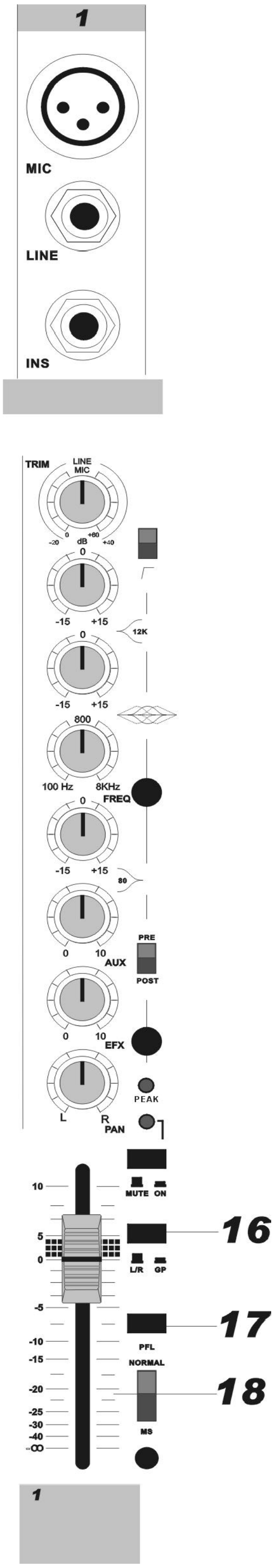
LED lights up when an excessively high signal level is present in the channel. In general, Input level should be set to the level where the LED flashes briefly on the loudest peaks only; if it flashes continuously, turn the input control down slightly. This ensures the best possible signal-to-noise ratio and dynamic range.

14. CHANNEL ON/OFF SWITCH

All outputs from the channel except inserts are enabled when the switch is down, when the On switch is released, the related channel is muted. This allows levels to be preset before the signal is required. While switching on the button, the indicated LED would light.

15. CHANNEL FADER

A long-throw 60mm linear fader determines the proportion of the channel in the mix and provides a clear visual indication of channel level.



16. GP GROUP SWITCH

The input channel signal always routes to ST; press the GP switch rout the channel signal to the GP output only, Select GP1 or GP 2 by channel PAN control. Turn fully to the left, the channel signal will be routed to GP 1; turn fully to the right, the channel signal will be routed to GP 2; You have to use the L/R buttons to patch the GP1 or GP2 to either side of the stereo mix.

17. PFL(Pre-Fader-Listening)

When PFL switch is pressed, the pre-fader signal will be fed to control room/headphones output, where it replaces the selected monitor source. PFL is very useful for mixing engineer to monitor individual channel without affect the main mixes, as to make adjustments or trace problem. When PFL is selected the LED indicator will light up.

18. NORMAL / MS SWITCH (UNIQUE FEATURE)

If you want to make a M-S stereo recording, normally, you will need 2 microphones, one is cardioid for M signal pointing at the center, and the other is figure eight microphone for S signal pointing the side. In order to decode the MS signal to XY, you need 3 channels of Mic input to start with: one for M and the rest two to for +S and accordingly. MM series unique feature NORMAL/MS switch will help to simplify the whole thing.
Now you won’ t have to worry about the channel availability, and patching with special cable. When you have an occasion for the stereo recording, please just choose MM series mixer and simply slide down the M-S switch, the mixer will prepare everything for you, the odd channel will now become the M channel, the even channel becomes the S channel.

M-S STEREO RECORDING

M-S is an abbreviation for mid-side, the microphones used for M-S recording are a cardioid (or figure eight) facing directly to the source, and a figure-eight microphone facing sideways. The figure-eight microphone picks up the left half of the source with one phase and the right half with inverted phase. When the signal is added to the signal from the cardioid, the signal from the left side adds together, while the signal from the right subtract due to the phase inversion. The combined pattern of the two microphones is similar to two cardioids (or figure eight) facing 45 degrees to the left and the other cardiod facing 45 degrees to the right to create the stereo image.
Why don’ t we use two cardioids 90 degrees apart? That will do something different! With the M-S system, the related angle of the cardioids can be varied with respect to the level of S (figure eight), and this will vary the width of the stereo image.

What is Cardioid ?

Cardioid means “ heart-shaped,” and any mic which has a hearted-

shaped Polar Pattern is called a cardioid microphone. The cardioid is most sensitive to the sounds which are arriving from the front, the sounds which are arriving from 90 degrees to the side is 6 Decibels less sensitive to the front . Theoretically, it is completely insensitive to the sounds coming from the rear. In practice, the 100% directional qualities of a cardioid are impossible to achieve due to reflected sounds from walls and ceiling, which are entering the sensitive area of the microphone.
The most important attribute of the cardioid is the microphone can discriminate between direct sounds and reverberant sounds, which are coming from all other directions at random. One of the most important uses of cardioid microphone is in sound reinforcement, where the directivitive allows the system gain to be higher without generating acoustic feedback.

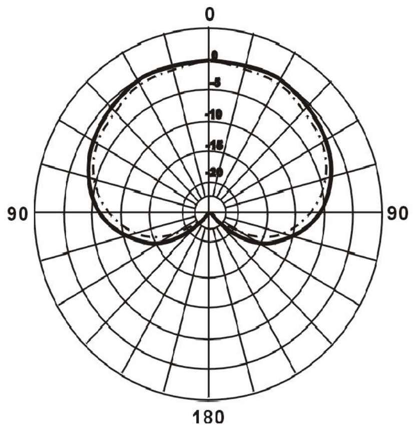
What is dynamic microphone?

The most common type of microphone is the dynamic,and the dynamic microphone is like a miniature loudspeaker. Dynamic microphone is highly dependable, rugged and reliable, they are very common in stage use, where physical strength is very important. They are also use in outdoor paging applications and in recording studios.

What is condenser microphone?

Condenser microphone is a very simple mechanical system, compared to other microphone types condenser microphone, it includes almost no moving parts. It is simply a thin stretched diaphragm that held very close to a metal disc which called a backplate. When sounds acts on the diaphragm, the pressure variations cause it to move slightly in response to the sound waveform, and the capacitance and the voltage on the backplate will vary. This voltage variation is the signal output of the microphone. The condenser microphone has extremely high output impedance; it must be placed very near to a preamplifier to avoid loss of the signal.

POLAR RESPONSE



Cardioid

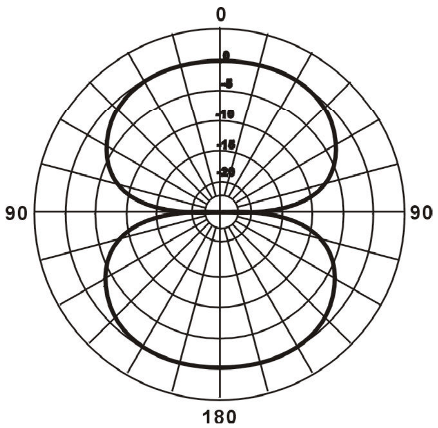
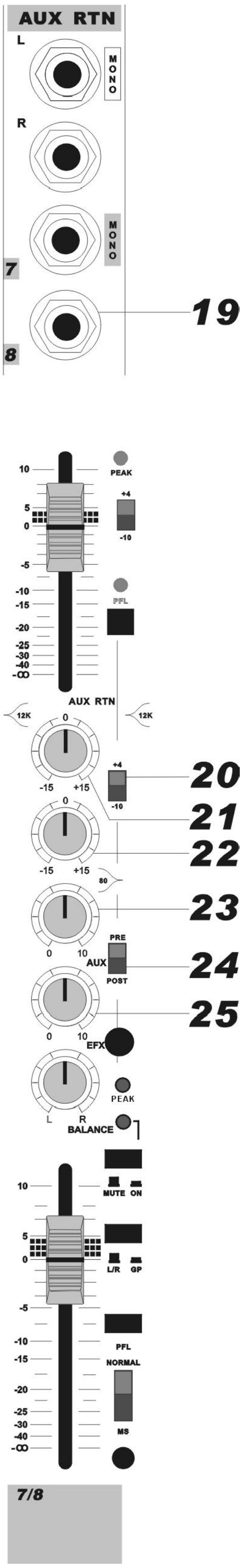


Figure-8

2.1.2 Stereo Channel 7~14

These 4 stereo input channels are designed for stereo line level signal, stereo source such as keyboards, drum machines, synths, hi-fi equipment or DAT players, It has the same function as mono channel except TRIM setting, 2 band EQ and balance adjustment.



19. STEREO INPUT

These high impedance inputs accept 2-pole phone jacks. Use these inputs for keyboards, drum machines, synths, tape machine or processing units. If the source signal is mono please plug into the left channel socket only.

20. +4/-10 SWITCH

The stereo input channel accept 1/4˝ phone jacks. It provides two input sensitivities .The –10dBV should be selected for semi-professional tape machine or HIFI systems, while most professional equipment uses input and output levels of +4dBu. This switch allows you to match the sources connected to the stereo input channel to either standards, which is important to ensure the best possible sound quality, Start with the switch +4; if you can’ t achieve an enough signal level, select to –10dBV.

21. HIGH 12K

Stereo channels have 2 band EQ only. Turn to the right to boost high frequency, adding crispness to cymbals, vocals and electronic instruments. Turn to the left to cut this frequency, reducing sibilance or hiss. The control has a shelving response that gives 15dB of boost or cut at 12KHZ.

22. LOW 80

Same as the mono channel LOW EQ (8).

23. AUX

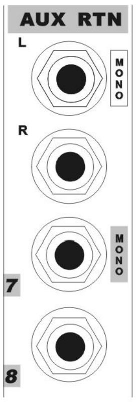
Same as the mono channel AUX (9).

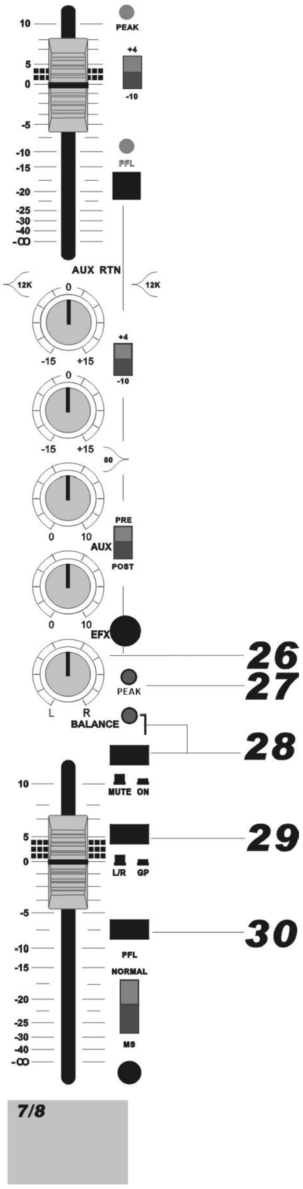
24. AUX PRE/POST SWITCH

Same as the mono channel PRE/POST switch (10).

25. EFX

Same as the mono channel EFX (11).


AUX RTN
L
MONO
R
MONO
7
8


10
5
0
-5
-10
-15
-20
-25
-30
-40
-∞
PEAK
+4
-10
PFL
AUX RTN
12K
0
-15
+15
0
-15
+15
80
PRE
0
10
AUX
POST
0
10
EFX
PEAK
L
R
BALANCE
MUTE
ON
L/R
GP
PFL
NORMAL
MS
7/8
26
27
28
29
30

26. BALANCE

The BALANCE control sets the amount of the channel signal feeding the ST mix output, allowing you to balance the source in the stereo image. When the control knob turn fully to the left or right, you send only that side of the signal to the mix.

27. Peak LED Indicator

Same as the mono channel PEAK (13).

LED lights up when an excessively high signal level is present in the channel. In general, Input level should be set to the level where the LED flashes briefly on the loudest peaks only, if it flashes continuously, turn the input control down slightly. This ensures the best possible signal-to-noise ratio and dynamic range.

28. CHANNEL ON/OFF SWITCH

Same as the mono channel on/off switch (14).

All outputs from the channel except inserts are enabled when the switch is down, when the On switch is released, the related channel is muted. This allows levels to be preset before the signal is required. The indicated LED will light up when the channel on button is pressed.

29. GP

Same as the mono channel GP switch (16)

30. PFL

Same as the mono channel PFL switch (17).

Pre-Fader-Listening, when PFL switch is pressed, the pre-fader signal will be fed to control room/headphones output, where it replaces the selected monitor source. PFL is very useful for mixing engineer to monitor individual channel without affect the main mixes when they are making adjustments or tracing problem. When PFL button is pressed, the indicated LED will light on.

2.1.3 Output & Input Sockets

Outputs

31. MAIN OUT

These sockets send line level signals (after the Main Mix, before the graphic equalizer) from the MM 1805(X) to external devices (for example: EQ or a power amplifier).

32. MAIN INS

These sockets send line level signals (after the Main Master control) to external effects (for example: a compressor, limiter, gate, etc) and return to the MM 1805(X).

33. CTRL RM

This jack socket sends the mix signals to the control room speakers.

34. HEADPHONE

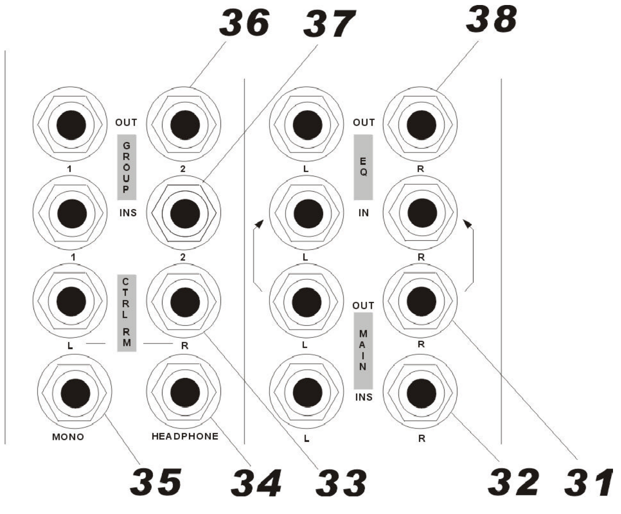
This jack socket sends the mix signals to the headphone.

35. MONO

This socket sends out the final L+R signal, which is controlled by the mono fader (67) It can be used for journalist recording, or reinforcing the stereo mix in the center cluster of large sound systems where the distance between the left and right loudspeaker is considerably lengthy. Main mix fader or graphic equalizer will not affect the signal.

36. GROUP OUT

The Group outputs are available on phone jack connectors; the groups may also feed the stereo mix, Please see Group fader for more information.



37. GROUP INS

These sockets send line level signals (after the Group control) to external effects (for example: a compressor, limitor, gate etc) and return to the Groups.

38. EQ OUT

These output sockets sends out the mix signals after EQ to the external equipment, such as amplifier.

39. 2T REC

The signals are sent to the tape recorder via the associate RCA socket.

40. EFX OUT

This socket sends out the signals from mix bus.

41. AUX OUT

This socket sends out the signals from aux bus.

Inputs

42. EQ IN

These sockets accept and enable external device to use the built-in equalizer. While you plug in these sockets, the signal path between main out and graphic equalizer will be cut off automatically.

43. 2T RTN

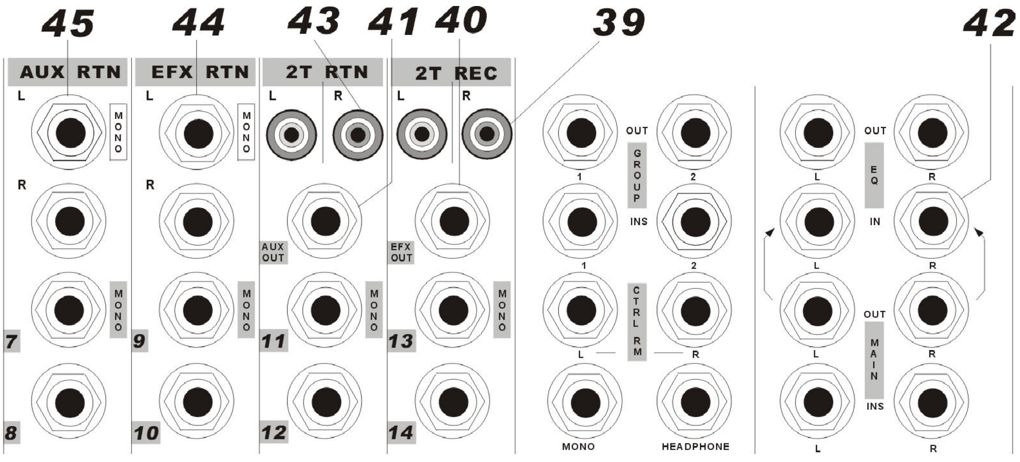
These sockets are RCA types, please connect to the semi-professional equipment such as cassette recorder, DAT, MD, and CD player.

44. EFX RTN

These sockets accept the returned processed effect signals back to the mix.

45. AUX RTN

These sockets accept the returned processed aux signals to the mix.


45
44
43
41
40
39
42
AUX RTN
EFX RTN
2T RTN
2T REC
L
R
MONO
AUX OUT
EFX OUT
7
8
9
10
11
12
13
14
OUT
GROUP
INS
1
2
CTRL RM
MONO
HEADPHONE
EQ
IN
MAIN
L
R

46. AUX RTN FADER

This fader controls the AUX RETURN level.

47. EFX RTN FADER

This fader controls the EFFECT RETURN level.

48. AUX OUT FADER

This fader controls the AUX OUT level.

49. EFX OUT FADER

This fader controls the mix signals level to send to the built-in effect or external effect.

50. 2T RTN CONTROL

Rotary fader controls the level feeding to the main stereo mix.

51. CTRL RM LEVEL

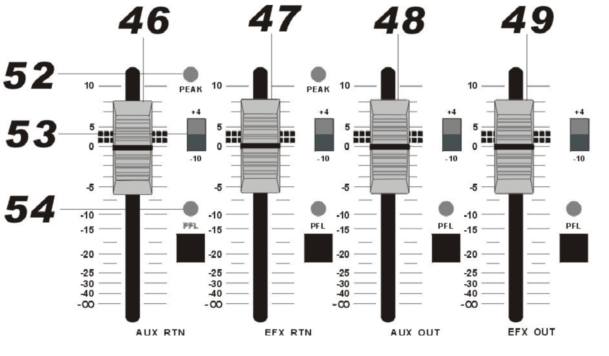
This rotary fader controls the output level to the control room.

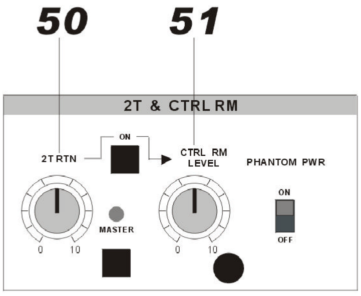
52. Peak LED Indicator

Same as the mono channel PEAK (13).

53. +4/-10 SWITCH

The input channel accept 1/4“ phone jacks. It provides two input sensitivities operation .The –10dBV should be selected for semi-professional tape machine or HIFI systems, while most professional equipment uses input and output levels of +4dBu. This switch allows you to match the sources connected to the stereo input channel to either standards, which is important to ensure the best possible sound quality .Start with the switch +4 ; if you can‘ t achieve an enough signal level, select to –10dBV.


46
47
48
49
52
53
54
PEAK
+4
-10
PFL
10
5
0
-5
-10
-15
-20
-25
-30
-40
-∞
AUX RTN
EFX RTN
AUX OUT
EFX OUT


50
51
2T & CTRL RM
ON
2T RTN
CTRL RM
LEVEL
PHANTOM PWR
ON
OFF
MASTER
0
10
0
10

54. PFL

Same as the mono channel PFL switch (17).

55. 2T RTN /CTRL RM ON SWITCH

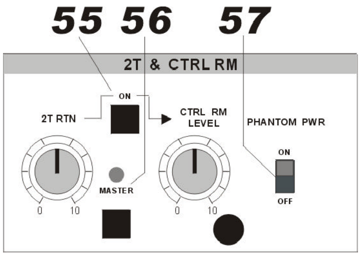
Push down this button feeds the 2T RTN signals into control room.

56. MASTER

Push down this button feeds the 2T RTN signal to the master output and its indicated LED lights.

57. PHANTOM PWR

This switch turn the master phantom power on and off.

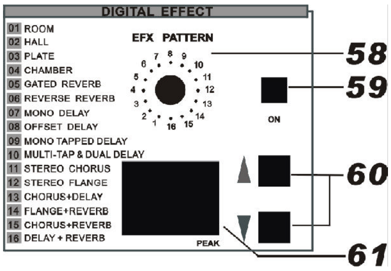

55
56
57
2T & CTRL RM
ON
2T RTN
CTRL RM
LEVEL
PHANTOM PWR
ON
OFF
MASTER
0
10
0
10

2.1.4 Digital Effect (1805X only)

The built-in 255 programmed Digital Effect is operated by the pattern selection buttons. Use the rotary mode selector to select one effect out of the 255 programs.

HOW TO USE THE BUILT-IN EFFECT PROCESSOR

1. Press the ON(59) button
2. Select one desired effect by pressing the UP/DOWN button(60)
3. Choose a PATTERN(58) for your effect mode
4. Turn up the EFX(25) volume and move up the channel fader on the input channel(s) that needs the effect.
5. Move both the EFX OUT(49) and EFX RTN(47) faders to appropriate position. EFX OUT fader determines the final input level of collective channels to the effect processor; EFX RTN fader determines the level of the returning processed signal to be sent to the main L/R output.
6. You should be able to hear the processed sound on the MAIN L/R output; moreover, you can set the +4/-10 switch(53) to -10 position for enhancement of the effect.
7. Do not cause the PEAK INDICATOR(61) to light up when using effect processor


DIGITAL EFFECT
01 ROOM
02 HALL
03 PLATE
04 CHAMBER
05 GATED REVERB
06 REVERSE REVERB
07 MONO DELAY
08 OFFSET DELAY
09 MONO TAPPED DELAY
10 MULTI-TAP & DUAL DELAY
11 STEREO CHORUS
12 STEREO FLANGE
13 CHORUS+DELAY
14 FLANGE+REVERB
15 CHORUS+REVERB
16 DELAY + REVERB
EFX PATTERN
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
ON
PEAK
58
59
60
61

58. EFX PATTERN MODE

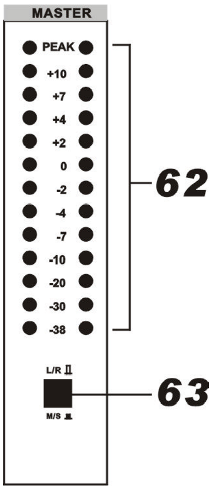
There are 16 parameter pattern for effect mode. Select the patterns according to the appendix.

59. EFFECT ON

This button allows you to switch on and off the built-in digital effect. The indicated LED will illuminate when the switch is being pressed.

60. EFFECT MODE UP/DN

The two buttons allow you to choose a desired digital effect mode. The selected mode is shown in the 2 digit display (61).The effect mode needs to be reset whenever you turn off the main power.


MASTER
PEAK
+10
+7
+4
+2
0
-2
-4
-7
-10
-20
-30
-38
L/R
M/S
62
63

61. EFFECT MODE DISPLAY and PEAK

The LED display will show the selected mode. If the effect level is high enough to cause clipping at the input of the effect, the red LED at the lower right corner will illuminate.

62. LED LEVEL METERS

Dual 13-segment LED meters show the level of master mix L and R in the stereo mode; in the MS mode, one shows the M signal level, the right one shows the S signal level.

63. LR/MS SELECTOR

Use this switch to set the LED LEVEL METER in the MS or MAIN L/R mode. In the MS mode, the left channel of the LED level meter represents the M signal, the right channel of the LED LEVEL METER represents the S signal. Two LED level are always different, the smaller difference between the two levels means wider the stereo image you can get.

2.1.5 GRAPHIC EQUALIZER

64. EQUALIZER

Stereo 7-band graphic equalizer with center frequency at 60, 120, 360, 1K, 2.5K, 7K, and 16K. With cut or boost of 12dB, allow precise global control over subtle tonal changes to the PA rig in a particular room. The built-in graphic equalizer is intended to trim the overall sound to suit the room, and is not designed to null out frequencies to prevent feedback .A full 31-band EQ is recommended for that purpose, please refer PHONIC 29-band or 31-band EQ(PHONIC MQ3229/4130/4230 or MQ 3300/3600).

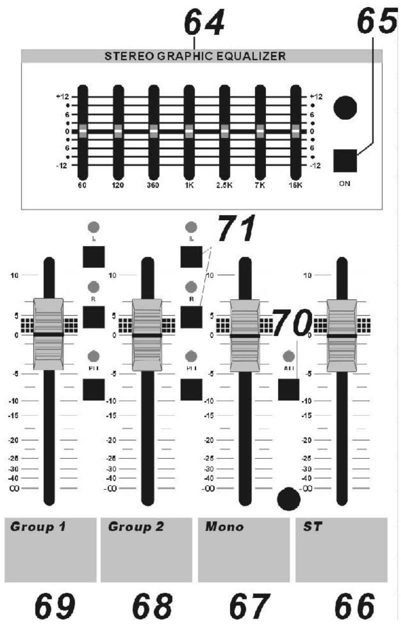
65. EQ ON

The stereo EQ channel may be switched on or off by the EQ ON button, this allows a direct comparison to the treated signal (with EQ) and un-treated signal, to judge the effect of the graphic setting. While adjusting these frequency faders, the stereo output will be affected simultaneously.

2.1.6 OUTPUT FADERS

66. ST FADER

This 60mm long fader controls the output level of MAIN OUT (31) or EQ OUT(38) to be fed into the built-in EQ or external equipment.



67. MONO FADER

This 60mm long fader controls the output level of MONO output (35).

68. Group 2

This 60mm long fader controls the output level of the group 2 mix.

69. Group 1

This 60mm long fader controls the output level of the group 1 mix.

70. AFL

AFL is a similar function to PFL, but it is after-fader instead of pre-fader.

71. GROUP L/R SWITCH

Group L/R switch routes the Group 1 or Group 2 to the left or right channel of the stereo mix, push down the L button, the LED on the button will light,it means you patched the Group signal to the left channel of the ST (66) outputs, push down both the L and R buttons, the LEDs on the L and R will light, it means you patched the group signals to the both sides of the ST outputs.

PATCHBAY

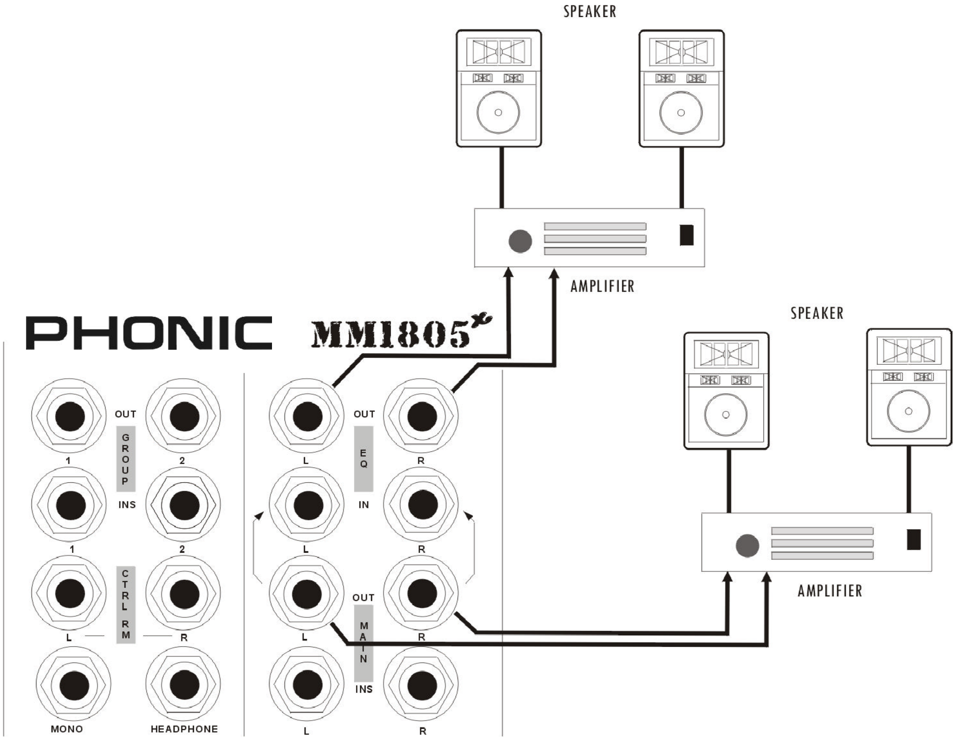
The line outputs from the mixer, return and insert are arranged together on the top right of the mixer. For maximum flexibility the inputs to the mixer, Graphic Equalizer are available separately to allow replugging for particular purposes. The sections are broken as soon as a jack is inserted, allow the signal to be re-routed as required.

Patchbay Applications

The individual access that the patchbay offers to each of the main sections of the MM1805(X) allows the mixer, the graphic equalizer to be interfaced separately to built-in equalizer or external equipment if required, or used in different configurations for particular applications. Three examples are giving below:

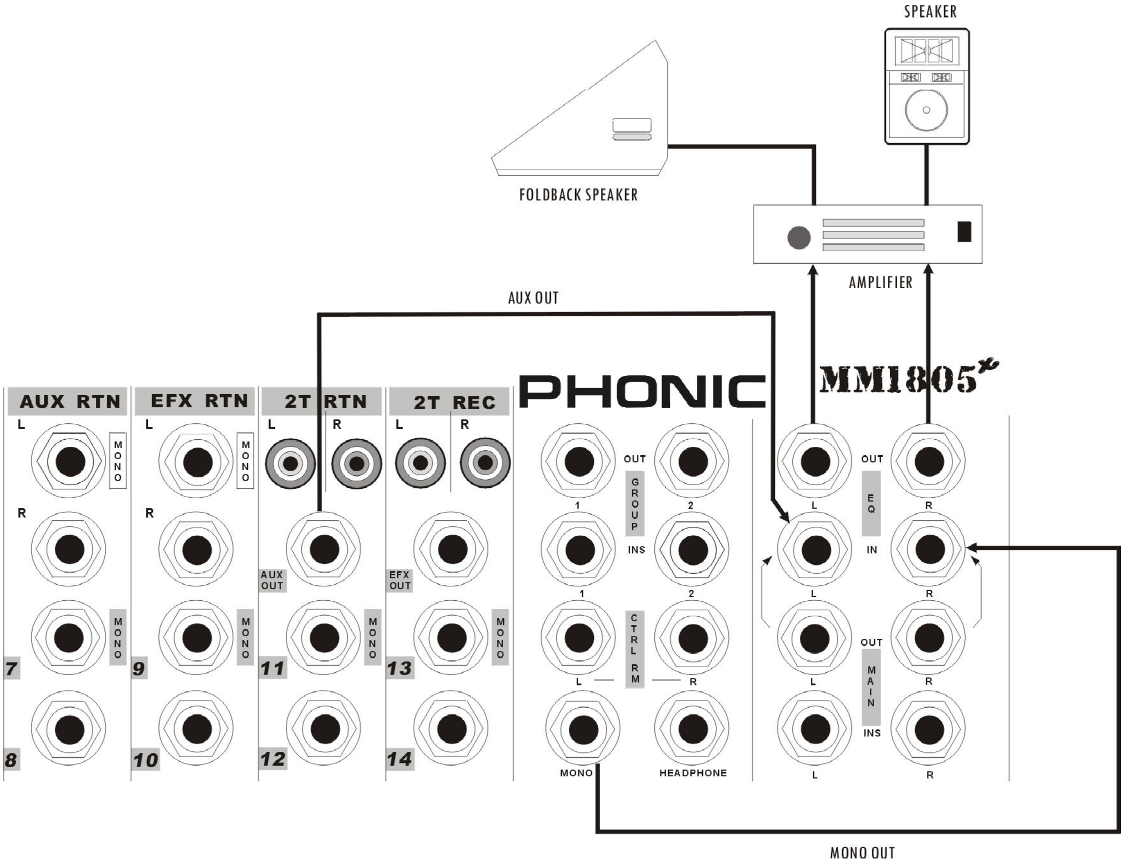
EXAMPLE 1

The outputs from the mixer are used to feed an external power amplifier. The feed may be taken before graphic equalizer (from the main outputs) or after the graphic equalizer (from the EQ output). In either case, plugging a jack into the output sockets breaks the connection to bypass the signal to the desire destination.



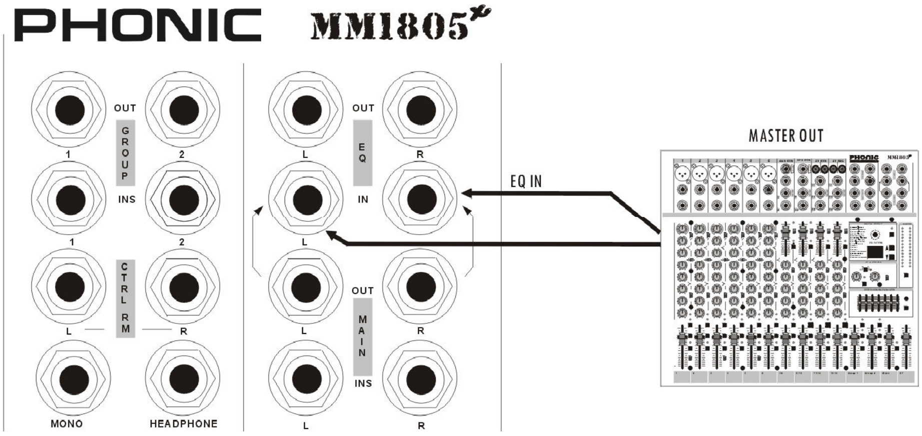
EXAMPLE 2

If only a mono PA output is required, one channel of the amplifier can be fed from the Mono Output by overplugging as shown, and the second channel of the amplifier may be used to drive foldback speaker from Aux out.


SPEAKER
FOLDBACK SPEAKER
AMPLIFIER
AUX OUT
PHONIC
MM1805
AUX RTN
EFX RTN
2T RTN
2T REC
L
R
MONO
AUX OUT
EFX OUT
7
8
9
10
11
12
13
14
OUT
GROUP
INS
1
2
CTRL RM
MONO
HEADPHONE
EQ
IN
MAIN
MONO OUT

EXAMPLE 3

An external mixer output plugs directly into the EQ IN, providing some signal correction if required.


PHONIC
MM1805
OUT
GROUP
INS
1
2
CTRL RM
L
R
MONO
HEADPHONE
EQ
IN
MAIN
EQ IN
MASTER OUT

2.2 Back-panel Description

72. DIP-SWITCH

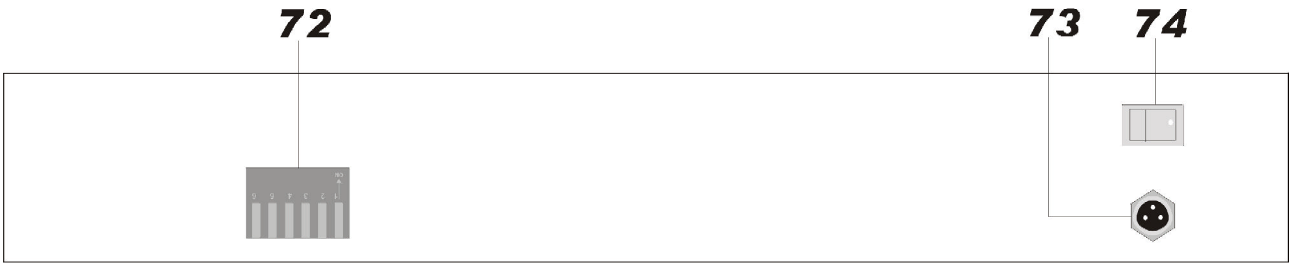
Individual Phantom Power On/Off Switch of channel 1~6.

73. Power Supply Input Socket

Connect the power supply unit to this socket. Make sure the power supply unit is not plug into mains before connecting to the mixer.

74. Power On/Off Switch

Switch on and off the mixer.



2.3 INITIAL SET UP

Even if you don't like to read manual, please read this section.

This procedure is very important, even if you don't like to read manual, please read this section. After you connected up the system, you are ready to set the initial set up for every input channel, the matching of every input trim to the signal source is crucial, every detail will affect the final output of the mixer. Basically, the input sensitivity adjustment, channel fader, groups and output fader is the main factors. You should try to set only as much microphone trim as required to achieve good balance between signals. If the input trim is set too low, you will not get enough gain on the faders to push the signal up to an adequate level. If the input trim is set too high, the channel fader will need to be pulled down in compensation, but leave the greater risk of feedback because a small fader movements will have a very significant effect on output level. Certainly, the limited fader travel path will not successful in the mixing procedure. Please use the following set up procedure, don't use the old way: turning the output up until they clip and then backing off.

Follow the procedure for each channel in use

- Set all faders and trim controls all the way off.
- Phantom powered microphone should be connected before the +48V is switched on.
- Set power amplifier levels to 70%.

But please ask the singer to perform alive, don t whisper while you’ re making sound check, or else ......

- Set the CTRL RM Level and Headphone level to about 50%.
- If you want to hear what you’ re doing later, plug your headphone into the phone output socket, or hook up your control room amplifier system to the Control Room outputs.
- Release the channel on button, the LED will not light.
- Push in the PFL button, the LED should light.
- Set EQ control and Graphic EQ at center position.
- Set PAN and BALANCE knobs at center position.
- You need a headphone to continue.
- Apply a typical performance level signal, monitoring the level on the LED meter.
- Adjust the input trim until the meter show in the amber section, with occasional peak to the first red LED at maximum source level. This allows enough headroom to accommodate peak and the maximum level for normal operation; you can listen to them through your headphone.
- For ”+4” line level audio signals, you may not need to turn it at all.
- For “-10” sources, you may need to turn the trim a little bit higher.
- For microphone sources, the trim control adjustment will depend on what kind of the microphone you use, normally turn the trim clockwise around 2~3 o’ clock. But please ask the singer to perform alive, don t whisper, if they didn’ t wake up while you’ re doing the sound check, when they are back to alive, you might drive the mixer overload or produce the feedback, because you set the gain too high during the initial set up.
- Repeat this procedure on every other channel, when more channels are added to the mixer, the meters LED may move up to the red section, adjust the overall level using the master faders if necessary.

2.4 BALANCED/UNBALANCED SYSTEM

Unbalanced/Balanced Connection

Most of the mistakes in audio installations are incorrect & defective audio connections.

Most of the mistakes in audio installations are incorrect and defective audio connections. In order to perfectly complete your installation, please pay special attention to the following section unless you are already familiar with balanced/unbalanced operation.

What is an unbalanced system?

You can find this system in most of home audio-video system. The connector uses one conductor to carry the signal, and the other conductor for ground. Normally for lower level signal, the signal conductor is shielded by the ground conductor.

What is a balanced system?

Balanced system transmits the signal via 2 conductors plus one ground shielding conductor. The 2 signal conductors carry the same signal but out of phase. For the balanced input stage, the amplifier will boost the difference of the 2 signal conductors and remove the identical part of the 2 signal conductors.(known as common mode signal) Because of the real signal is carried by the 2 conductors out of phase, so it is perfectly carry to the input. At the same time, the interference occurs during transmission will be identical part (common mode), because the signal conductors are run together, there is no chance they can be different, and all the interference will be removed by the balanced input amplifier.

The difference in between 2 operations:

Because the common mode interference immunity of balanced system, and at the same time, the ground conductor doesn’ t need to carry any electrical current so that it means the ground of the 2 connected units has identical ground level which is vital to interference free system.

Let’ s look back to unbalanced system, the signal electrical current is from signal conductor to ground conductor, and that means the ground level of 2 connected units are not identical. This means the system is much more easier to be interfered with noise.

Running long cables is easy for balanced system but difficult for unbalanced system, and the lower noise is always characterized in balanced system.

Because balanced system needs 2 conductors for signal and 1 conductor for ground, minimum 3 conductors are needed for wiring balanced system. So dedicated system separates ground and shield as 2 conductors.

Please read following section for proper wiring balanced and unbalanced system:

The Correct Wiring for Balanced Operation

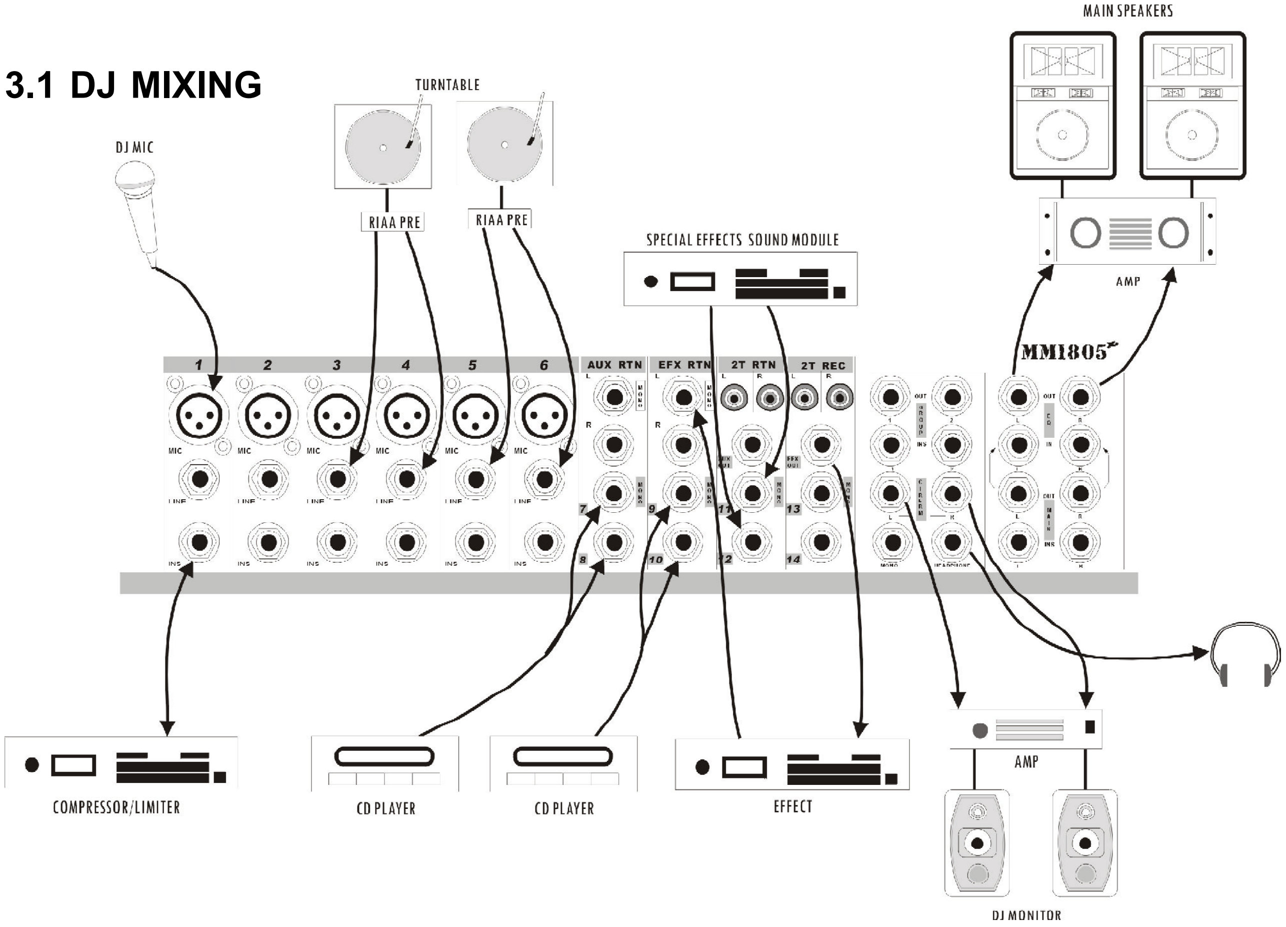
Always connect the main power with the 3-prong plug. Make sure the power system ground is properly done. Don’ t use ground insulator plug adapter without properly connect the ground individually. This is vital to a successful audio system connection.

Always connect the ground pin (PIN 1 in XLR) to the source unit, and disconnect this pin at the destination unit. This connection topology is to avoid grounding loop created by both connection of signal and power ground. To utilize only the power ground, is because it always has lower resistance and better distribution than signal ground.

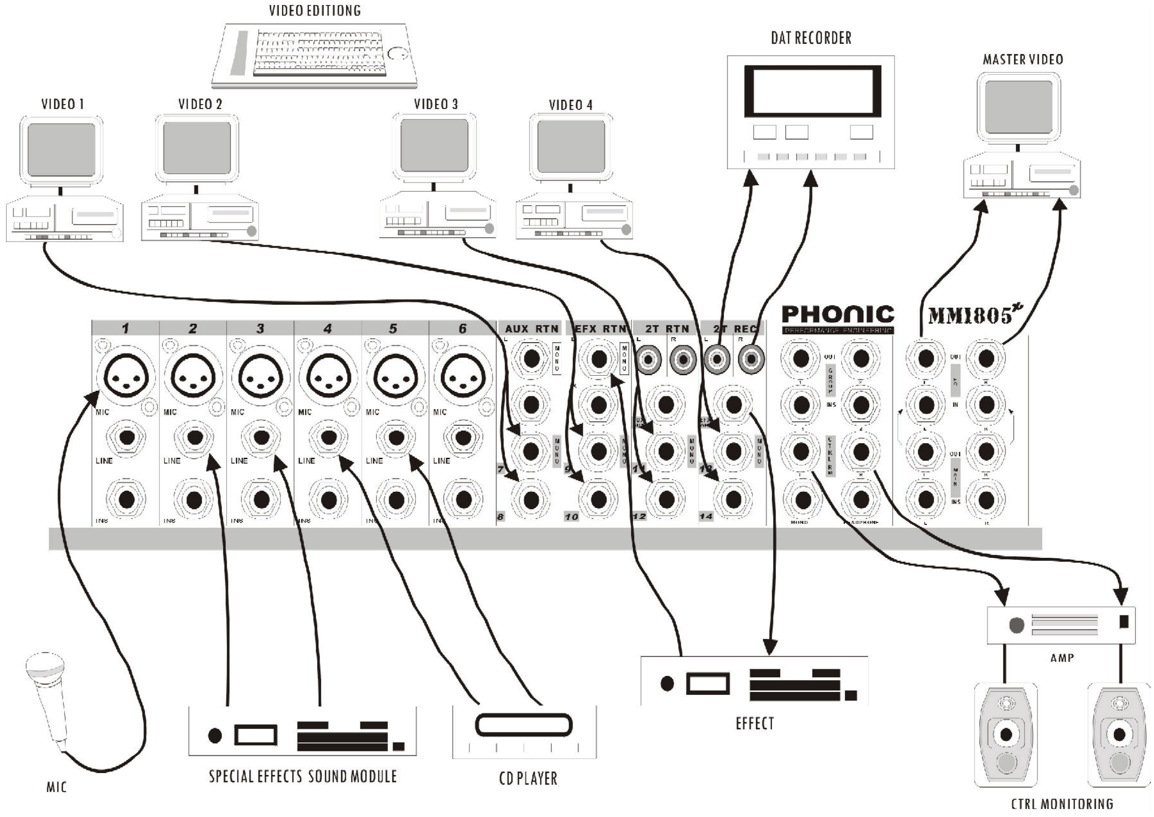
If there is hum, the very possible reason is bad grounding connection in the system. In case you can not find the fault, try to connect the ground pin of the input connectors. If the hum is reduced or eliminated, check your power grounding system. Special attention is needed when you use the equipment racks with distance apart, and/or use large quantity of power amplifiers. Check the power ground between the racks and power distribution strips with your electricity engineer. Do make sure there is one and only one proper ground point in the audio system (or connected video system.)

3. APPLICATION

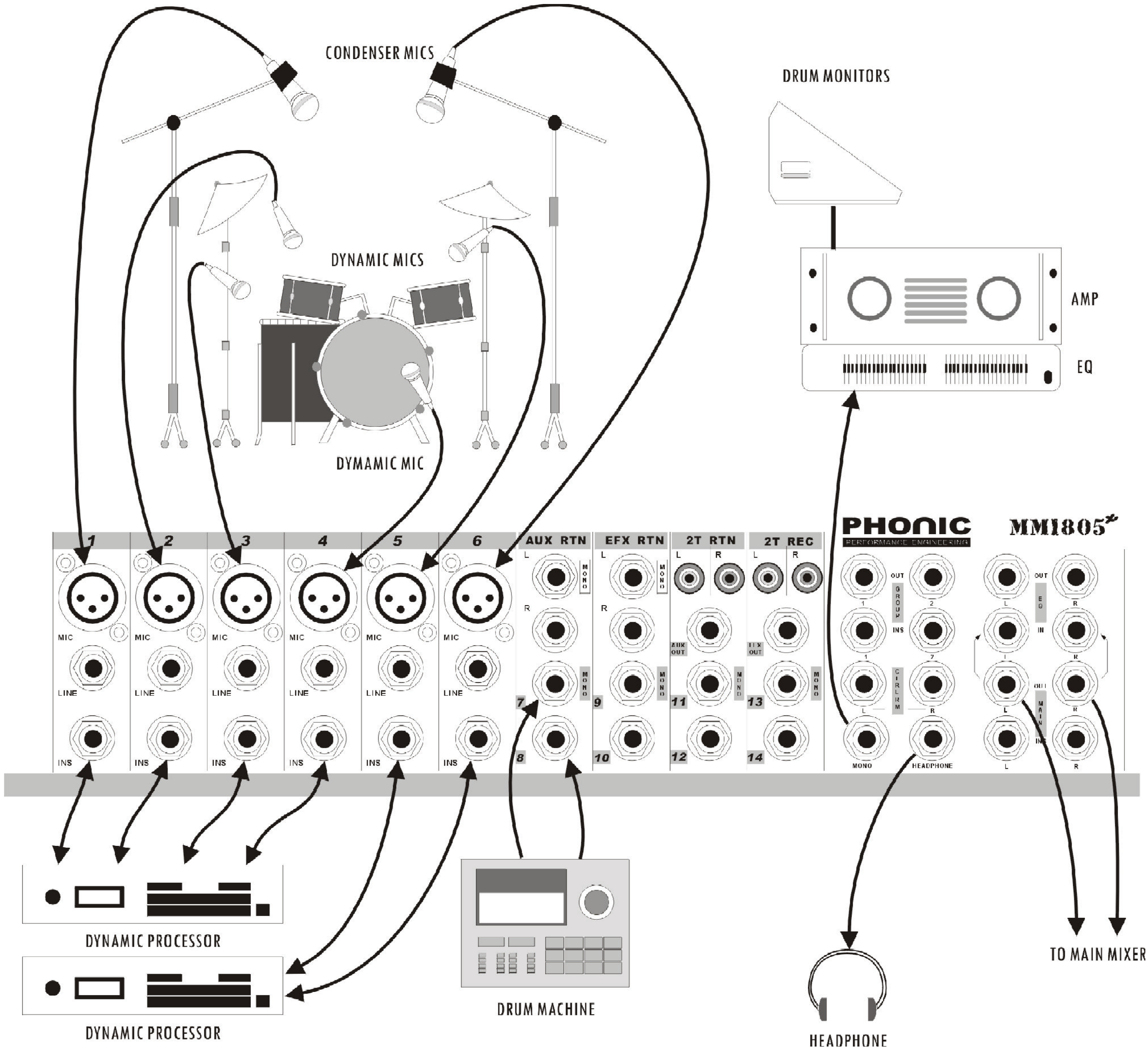
3.1 DJ MIXING


MAIN SPEAKERS
TURNTABLE
DJ MIC
RIAA PRE
RIAA PRE
SPECIAL EFFECTS SOUND MODULE
AMP
MM1805X
1
2
3
4
5
6
AUX RTN
EFX RTN
2T RTN
2T REC
MIC
LINE
INS
COMPRESSOR/LIMITER
CD PLAYER
CD PLAYER
EFFECT
AMP
DJ MONITOR

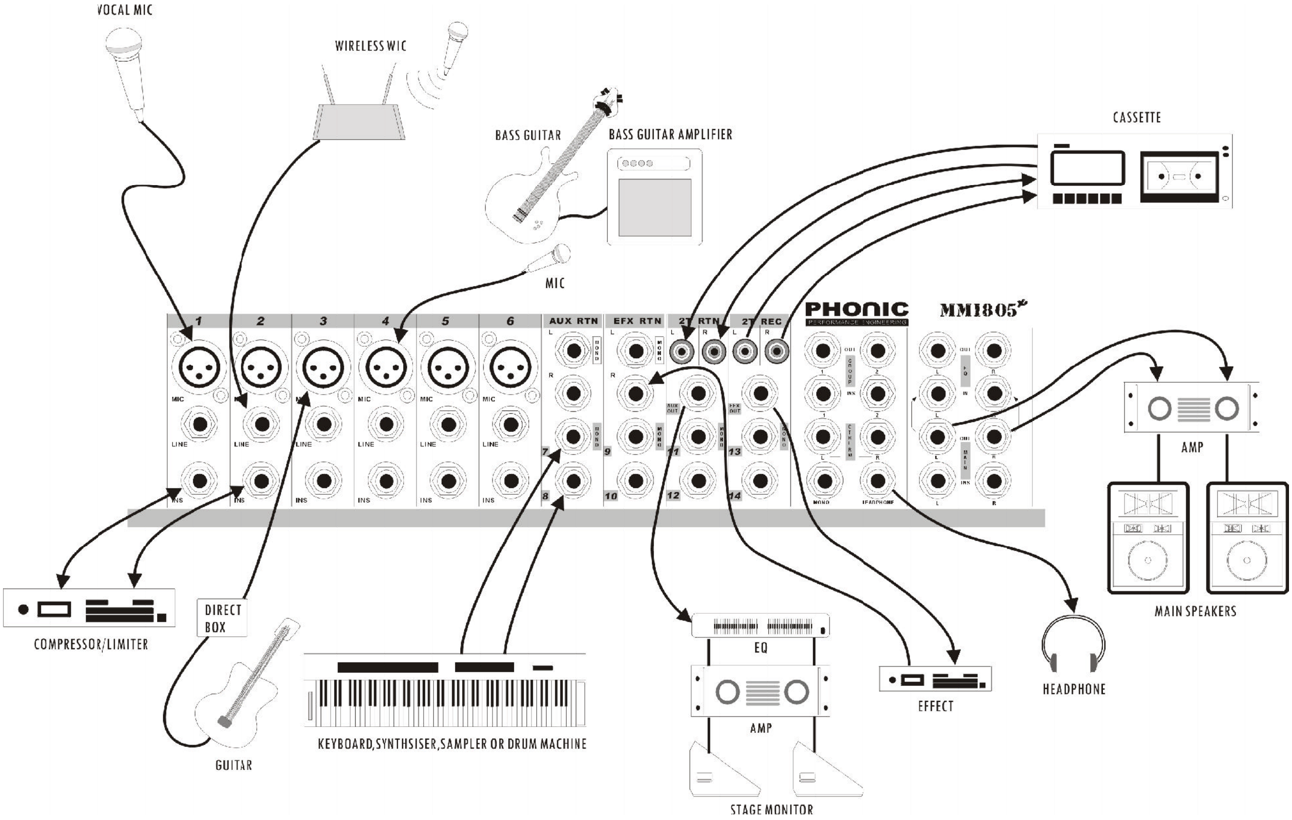
3.2 VIDEO POST-PRODUCTION


VIDEO EDITIONG
DAT RECORDER
MASTER VIDEO
VIDEO 1
VIDEO 2
VIDEO 3
VIDEO 4
PHONIC
MM1805X
1
2
3
4
5
6
AUX RTN
EFX RTN
2T RTN
2T REC
MIC
LINE
INS
AMP
EFFECT
MIC
SPECIAL EFFECTS SOUND MODULE
CD PLAYER
CTRL MONITORING

3.3 SUBMIXING


CONDENSER MICS
DRUM MONITORS
DYNAMIC MICS
AMP
EQ
DYMAMIC MIC
1
2
3
4
5
6
AUX RTN
EFX RTN
2T RTN
2T REC
PHONIC
PERFORMANCE ENGINEERING
MM1805
MIC
LINE
INS
L
R
MONO
7
8
9
10
11
12
13
14
AUX OUT
EFX OUT
OUT
GROUP
INS
CTRL RM
HEADPHONE
EQ
IN
MAIN
DYNAMIC PROCESSOR
DYNAMIC PROCESSOR
DRUM MACHINE
HEADPHONE
TO MAIN MIXER

3.4 STANDARD CONNECTION


VOCAL MIC
WIRELESS WIC
BASS GUITAR
BASS GUITAR AMPLIFIER
CASSETTE
MIC
1
2
3
4
5
6
AUX RTN
EFX RTN
2T RTN
2T REC
PHONIC
MM1805
MIC
LINE
INS
7
8
9
10
11
12
13
14
AMP
MAIN SPEAKERS
COMPRESSOR/LIMITER
DIRECT BOX
GUITAR
KEYBOARD,SYNTHSISER,SAMPLER OR DRUM MACHINE
EQ
AMP
STAGE MONITOR
EFFECT
HEADPHONE

4. APPENDIX

DIGITAL EFFECT MODE AND PATTERN

EFFECT 1: ROOM

	Mix (%)	Decay(sec)	Predelay(ms)	EQ	Damping
1	100	0.4	2	LPF 5.51K	7
2	100	0.5	10	LPF 10.3K	1
3	100	0.7	0	LPF 8.9K	1
4	100	0.7	17	LPF 15.6K	4
5	100	0.9	0	LPF 2.1K	2
6	100	1	15	LPF 8.11K	4
7	100	1	0	thru	1
8	100	1.2	10	LPF 10.3K	1
9	100	1.4	30.1	LPF 10.3K	2
10	100	1.5	0	LPF 10.3K	7
11	100	1.5	25	LPF 8.11K	3
12	100	1.8	25	LPF 4.1K	7
13	100	2.2	30	thru	7
14	100	2.6	0	LPF 5.51K	12
15	100	3	25	LPF 4.47K	4
16	100	3.4	10	LPF 5.51K	1

EFFECT 2: HALL

	Mix (%)	Decay(sec)	Predelay(ms)	EQ	Damping
1	100	1.8	16	LPF 8.11K	7
2	100	2.2	60	LPF 14.5K	2
3	100	2.3	127	LPF 5.07K	6
4	100	2.4	24	LPF 2.86K	5
5	100	2.4	12	LPF 5.51K	1
6	100	2.5	1	LPF 2.59K	2
7	100	2.6	30	LPF 6.25K	2
8	100	3.2	100	LPF 4.47K	2
9	100	3.5	60	LPF 14.5K	2
10	100	3.5	35	LPF 1.86K	1
11	100	4	75	LPF 14.5K	12
12	100	5	60	LPF 14.5K	2
13	100	6	26	LPF 5.51K	5
14	100	7	40	LPF 5.07K	6
15	100	8	60	LPF 5.07K	2
16	100	10	60	LPF 14.5K	2

EFFECT 3: PLATE

	Mix (%)	Decay(sec)	Predelay(ms)	EQ	Damping
1	100	0.5	0	HPF 320	1
2	100	1.8	0	LPF 8.11K	7
3	100	1.2	13	HPF 490	2
4	100	1.3	12	LPF 3.44K	5
5	100	1.7	0	LPF 2.86K	6
6	100	1.8	30	LPF 8.11K	3
7	100	1.9	1	HPF 78	3
8	100	2.2	16	LPF 6.25K	12
9	100	2.5	20	Thru	1
10	100	2.8	10	LPF 5.07K	4
11	100	3	20	HPF490	2
12	100	3.2	20	LPF 4.1K	2
13	100	3.4	127	LPF 14.5K	2
14	100	3.5	20	LPF 5.07K	1
15	100	3.8	20	LPF 1.23K	1
16	100	4	39	LPF 8.11K	4

EFFECT 4: CHAMBER

	Mix (%)	Decay(sec)	Predelay(ms)	EQ	Damping
1	100	1.1	0	thru	1
2	100	1.8	0	LPF 8.11K	7
3	100	2.2	10	LPF 14.5K	2
4	100	2.5	4	HPF158	3
5	100	2.7	5	LPF 8.11K	1
6	100	3	34	LPF 8.11K	3
7	100	3.2	10	LPF 4.47K	2
8	100	3.5	0	Thru	2
9	100	3.5	5	LPF 1.86K	1
10	100	3.6	15	LPF 4.1K	2
11	100	3.8	0	LPF 2.59K	2
12	100	4.2	10	LPF 5.07K	2
13	100	4.8	10	LPF 8.11K	2
14	100	6	5	LPF 5.51K	5
15	100	7.5	5	LPF14.5K	2
16	100	8	20	LPF 5.07K	2

EFFECT 5: GATED REVERB

	Mix (%)	Decay(sec)	Gate Time(ms)	Predelay(ms)	EQ	Gate LPF
1	100	0.6	50	4	LPF 13.6K	8.11K
2	100	0.5	75	0	thru	11.4K
3	100	0.8	300	63	LPF 3.15K	thru
4	100	1.3	100	1	thru	thru
5	100	1.6	125	127	LPF 5.07K	thru
6	100	1.4	150	20	LPF 15.6K	8.11K
7	100	1.6	175	0	LPF 8.49K	4.86K
8	100	1.4	250	0	LPF 7.11K	5.07K
9	100	1.4	300	0	LPF 4.1K	thru
10	100	2	50	3	LPLF 12.5K	5.07K
11	100	2.2	100	16	LPF 7K	thru
12	100	2.7	150	65	LPF 5.6K	2.46K
13	100	3.2	100	1	LPF 8.11K	5.07K
14	100	3.2	200	1	LPF 8.11K	5.07K
15	100	3.2	400	1	LPF8.11K	5.07K
16	100	4.5	100	1	thru	thru

EFFECT 6: REVERSE REVERB

	Mix (%)	Decay(sec)	Gate Time(ms)	Predelay(ms)	EQ	Gate LPF
1	100	0.8	300	63	LPF 3.14K	thru
2	100	1	75	10	thru	11.4K
3	100	1.3	100	1	thru	thru
4	100	1.6	125	127	LPF 5.07K	thru
5	100	1.4	150	20	LPF 15.6K	8.11K
6	100	1.6	175	0	LPF 8.49K	4.86K
7	100	1.4	250	0	LPF 7.11K	5.07K
8	100	1.4	300	0	LPF 4.1K	thru
9	100	2	50	3	LPF 5.07K	5.07K
10	100	2.2	100	16	LPF 7K	thru
11	100	2.4	50	64	LPF 13.6K	10.9K
12	100	2.7	150	65	LPF 5.6K	2.46K
13	100	3.2	100	1	LPF 8.11K	5.07K
14	100	3.2	200	1	LPF 8.11K	5.07K
15	100	3.2	400	1	LPF8.11K	5.07K
16	100	4.5	100	1	thru	thru

EFFECT 7: MONO DELAY

	Mix (%)	Delay(sec)	Regen (%)	EQ
1	100	23	75	thru
2	100	55	0	LPF 5.07K
3	100	80	0	thru
4	100	130	0	thru
5	100	130	66	thru
6	100	200	0	thru
7	100	200	66	thru
8	100	300	1	thru
9	100	300	66	thru
10	100	385	13	LPF 11.4K
11	100	385	66	LPF 11.4K
12	100	450	0	thru
13	100	500	17	LPF 13.6K
14	100	800	0	thru
15	100	1000	0	thru
16	100	2000	0	thru

EFFECT 8: OFFSET DELAY

	Mix (%)	Delay(sec)	Offset(ms)	Regen(%)	EQ
1	100	25	10	90	HPF 78
2	100	35	0	90	HPF 320Hz
3	100	80	80	50	LPF 15.6K
4	100	100	100	0	LPF 15.6K
5	100	150	75	0	LPF 5.07K
6	100	200	200	66	LPF 15.6K
7	100	200	50	0	LPF 12.1K
8	100	250	250	10	LPF 10.3K
9	100	300	150	8	HPF 490
10	100	300	150	66	LPF 10.3K
11	100	300	100	0	thru
12	100	370	30	15	thru
13	100	400	400	0	thru
14	100	410	30	20	thru
15	100	500	100	0	thru
16	100	720	360	0	LPF 5.07K

EFFECT 9: MONO TAPPED DELAY

	Mix (%)	Dealy Time (ms)	Taps	Regen	EQ
1	100	80	2	0	thru
2	100	120	2	0	thru
3	100	170	2	0	thru
4	100	200	2	0	thru
5	100	200	3	0	thru
6	100	410	2	0	thru
7	100	410	3	0	thru
8	100	520	2	0	LPF 12.1K
9	100	520	3	0	LPF 12.1K
10	100	520	4	0	LPF 12.1K
11	100	710	2	0	LPF 14.5K
12	100	710	3	0	LPF 14.5K
13	100	710	4	0	LPF 14.5K
14	100	800	3	0	HPF 158
15	100	1000	4	0	thru
16	100	2000	4	0	thru

EFFECT 10: MULTI-TAP & DUAL DELAY

	MULTI-TAP						
	Mix (%)	Mode	Delay(ms)	Regen(%)	Taps	Ping Pong	EQ
1	100	Forward Linear	200	30	4	On	thru
2	100	Forward Linear	400	5	4	On	thru
3	100	Forward Linear	600	5	4	On	HPF 240
4	100	Forward Linear	800	30	10	On	HPF 240
5	100	Forward Linear	1000	5	4	On	LPF 15.6K
6	100	Reverse Log	1000	5	22	On	thru
7	100	Forward Linear	1200	5	4	On	LPF 5.07K
8	100	Forward Linear	1500	5	8	On	LPF 5.07K

	DUAL DELAY/LEFT				DUAL DELAY/RIGHT			
	Mix (%)	Delay(ms)	Regen(%)	EQ	Mix (%)	Delay(ms)	Regen(%)	EQ
1	100	10	0	thru	100	80	0	thru
2	100	80	2	thru	100	120	3	thru
3	100	150	0	thru	100	170	0	thru
4	100	200	66	LPF2.46K	100	200	66	LPF2.46K
5	100	270	0	thru	100	280	1	thru
6	100	410	0	thru	100	280	0	thru
7	100	420	0	thru	100	80	0	thru
8	100	600	0	thru	100	100	0	thru

EFFECT 11: ST CHORUS

	Mix (%)	Speed(Hz)	Width(%)	Type(Voice)	Static Delay(ms)	BW
1	100	0.11	76	2	10	10KHz
2	100	0.14	20	2	5	2KHz
3	100	0.17	53	4	12	4KHz
4	100	0.2	25	4	16	10KHz
5	100	0.26	18	4	10	8KHz
6	100	0.2	6	4	10	8KHz
7	100	0.2	14	2	1	4KHz
8	100	0.26	20	2	10	10KHz
9	100	0.26	57	4	15	10KHz
10	100	0.29	14	4	4	8KHz
11	100	0.32	57	2	15	10KHz
12	100	0.41	9	2	10	Full
13	100	0.56	15	2	20	4KHz
14	100	0.7	14	4	10	Full
15	100	0.8	14	2	10	Full
16	100	0.92	14	4	30	Full

EFFECT 12: ST FLANGE

	Left Mix	Left Pitch	Left Fine	Right Mix	Right Pitch	Right Fine
1	100	0	1	100	0	1
2	100	0	1	100	0	-1
3	100	0	1	100	0	-2
4	100	0	2	100	0	-2
5	100	0	8	100	8	0
6	100	4	0	100	4	0
7	100	4	0	100	7	0
8	100	5	0	100	5	0
9	100	-8	1	100	-8	1
10	100	7	0	100	7	0
11	100	7	0	100	-7	0
12	100	9	0	100	9	0
13	100	-12	0	100	0	-2
14	100	12	0	100	12	0
15	100	-12	0	100	-12	0
16	100	12	0	100	-12	0

EFFECT 13: CHORUS + DELAY

	Overall Mix (%)	Chorus					
		Mix(%)	Speed(Hz)	Width(%)	Type	Delay(ms)	BW(Hz)
1	100	50	0.02	43	4	8	8K
2	100	50	0.08	15	4	8	Full
3	100	50	0.08	43	4	16	8K
4	100	50	0.11	76	2	10	10K
5	100	50	0.14	39	4	8	Full
6	100	50	0.17	53	4	12	10K
7	100	50	0.2	18	4	10	8K
8	100	50	0.2	6	4	10	8K
9	100	50	0.2	85	2	1	Full
10	100	50	0.26	57	4	15	10K
11	100	50	0.29	14	4	4	8K
12	100	50	0.29	76	2	9	Full
13	100	50	0.32	57	2	15	10K
14	100	50	0.41	18	2	10	Full
15	100	50	0.5	6	4	10	8K
16	100	50	0.71	15	2	10	Full

	Delay			
	Mix(%)	Time(ms)	Regen(%)	Offset Time(ms)
1	25	400	0	20
2	25	400	8	20
3	33	200	33	20
4	25	200	66	20
5	25	150	66	15
6	25	100	50	10
7	25	200	8	10
8	25	200	50	25
9	25	300	50	30
10	25	200	33	20
11	25	400	8	20
12	25	200	8	20
13	25	150	0	0
14	25	200	66	10
15	20	200	10	20
16	25	100	8	10

EFFECT 14: FLANGE + REVERB

	Overall Mix (%)	Flange				
		Mix(%)	Speed(Hz)	Width(%)	Type	Regen(%)
1	100	40	0.05	85	Normal	50
2	100	50	0.05	85	Normal	50
3	100	50	0.05	85	Normal	50
4	100	58	0.08	20	Normal	20
5	100	50	0.11	20	Normal	50
6	100	50	0.14	50	Normal	50
7	100	50	0.17	20	Normal	20
8	100	50	0.26	48	Normal	20
9	100	50	0.32	57	Normal	20
10	100	50	0.35	7	Normal	30
11	100	50	0.41	7	Normal	85
12	100	50	0.44	20	Normal	30
13	100	50	0.5	20	Normal	20
14	100	50	0.56	9	Normal	20
15	100	50	0.62	20	Normal	50
16	100	50	0.71	20	Normal	35

	Reverb					
	Mix(%)	Type	Decay(sec)	Predelay(ms)	Damping	Filter(Hz)
1	60	Hall	1.5	13	3	thru
2	25	Room	1	0	1	thru
3	50	Room	1	0	1	thru
4	50	Plate	1.8	30	2	LPF8.11K
5	50	Room	1.2	10	1	LPF10.3K
6	50	Hall	2.2	30	2	LPF5.07K
7	50	Plate	2.2	16	12	LPF6.25K
8	50	Plate	1.2	13	2	HPF490
9	50	Plate	1.7	0	6	LPF2.86K
10	50	Hall	1.8	16	7	LPF8.11K
11	50	Hall	2.2	44	2	LPF14.5K
12	50	Plate	1.3	1.2	5	LPF3.44K
13	50	Plate	1.9	1	3	HPF78
14	50	Hall	2.4	24	5	LPF2.86K
15	50	Hall	2.5	1	2	LPF2.59K
16	50	Hall	1.8	16	7	LPF8.11K

EFFECT 15: CHORUS + REVERB

	Overall Mix (%)	Chorus				
		Mix(%)	Speed(Hz)	Width(%)	Delay(ms)	BW(Hz)
1	100	50	0.02	6	15	10KHz
2	100	75	0.05	76	10	10KHz
3	100	75	0.05	76	10	10KHz
4	100	50	0.08	15	8	Full
5	100	50	0.11	20	1	Full
6	100	50	0.14	20	5	2KHz
7	100	50	0.17	53	12	4KHz
8	100	50	0.2	6	1	Full
9	100	63	0.2	18	10	8KHz
10	100	75	0.2	34	4	10KHz
11	100	50	0.26	18	10	8KHz
12	100	50	0.26	57	15	10KHz
13	100	50	0.33	57	15	10KHz
14	100	50	0.35	25	10	8KHz
15	100	50	0.5	20	15	8KHz
16	100	50	0.62	29	10	8KHz

	Reverb					
	Mix(%)	Type	Decay(sec)	Predelay(ms)	Damping	Filter(Hz)
1	53	Plate	0.1	0	12	HPF158
2	50	Room	0.4	2	2	thru
3	50	Room	1.5	25	3	LPF8.11K
4	40	Plate	1.4	5	2	LPF13.6K
5	90	Plate	2.2	0	3	thru
6	50	Hall	1.8	16	7	LPF8.11K
7	50	Chamber	1.1	0	1	thru
8	90	Plate	4.1	0	3	thru
9	22	Chamber	1.7	5	3	LPF15.6K
10	20	Room	1.9	0	1	thru
11	50	Room	1	15	4	LPF8.11K
12	50	Hall	2.2	44	2	LPF14.5K
13	50	Hall	2.5	1	2	LPF2.59K
14	50	Hall	2.9	10	2	LPF5.07K
15	50	Hall	3.5	35	1	LPF1.86K
16	25	Hall	2.4	10	2	LPF5.07K

EFFECT 16: DELAY + REVERB

	Overall Mix (%)	Delay		
		Mix(%)	Time(ms)	Regen(%)
1	100	50	55	0
2	100	40	80	10
3	100	50	100	10
4	100	50	130	0
5	100	100	183	47
6	100	75	185	50
7	100	50	200	45
8	100	100	200	66
9	100	50	300	1
10	100	25	385	3
11	100	50	385	13
12	100	50	450	0
13	100	50	500	17
14	100	26	530	33
15	100	50	600	10
16	100	50	800	0

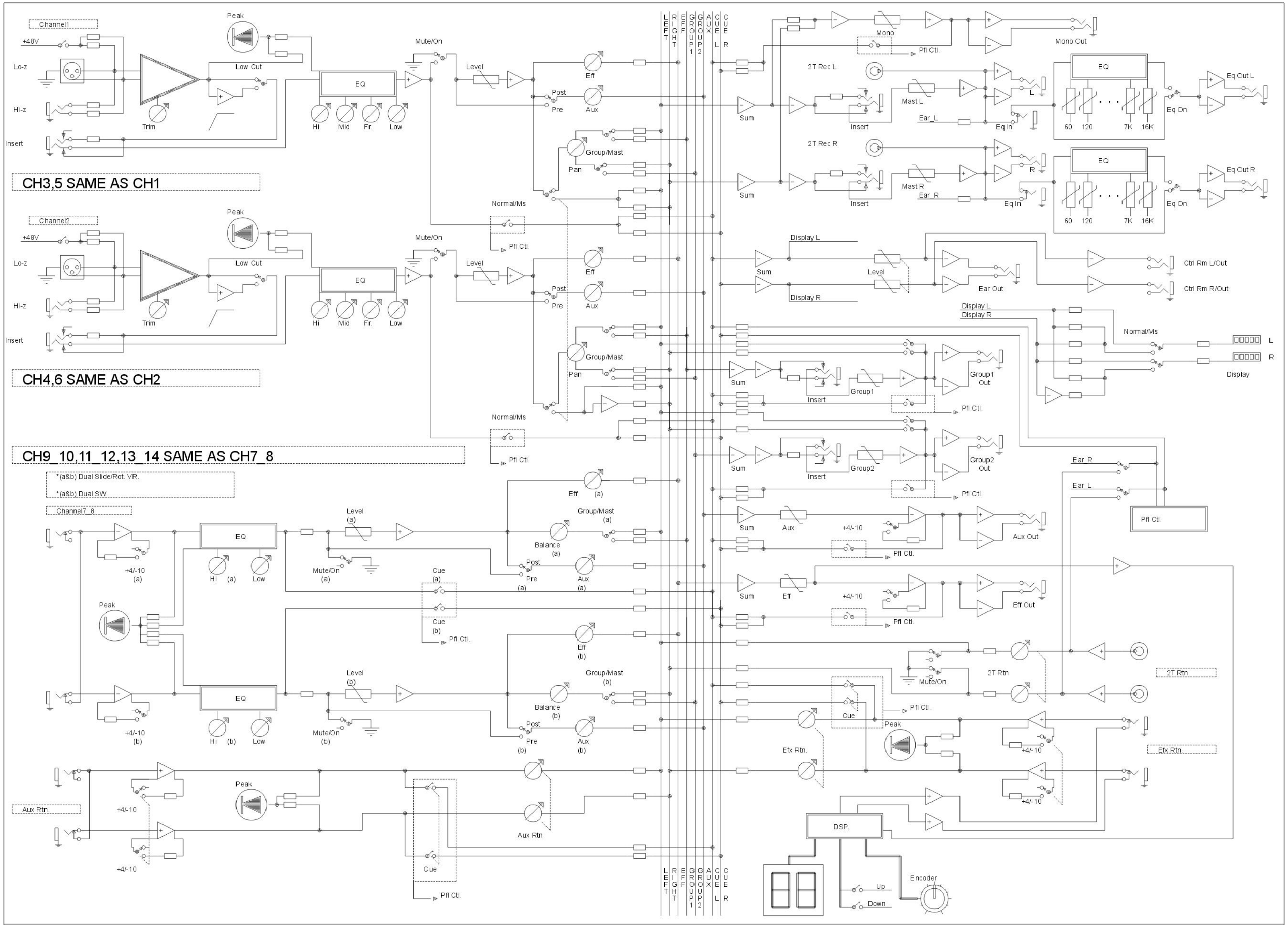
	Reverb					
	Mix(%)	Type	Decay(sec)	Predelay(ms)	Damping	Filter(Hz)
1	50	Plate	1.2	12	2	thru
2	30	Hall	2.2	0	2	LPF5.07K
3	50	Plate	0.5	0	1	HPF320
4	50	Room	0.9	0	12	LPF2.1K
5	25	Hall	3	10	1	Thru
6	30	Hall	3	0	1	Thru
7	25	Hall	2.2	0	1	Thru
8	25	Plate	2	0	2	LPF5.07K
9	30	Hall	1.8	16	7	LPF8.11K
10	16	Chamber	1.8	0	5	HPF240
11	30	Hall	2.2	44	2	LPF5.07K
12	30	Hall	2.2	0	2	LPF5.07K
13	50	Plate	1.2	13	2	HPF490
14	62	Plate	2.1	0	1	Thru
15	30	Hall	2.4	12	1	LPF5.51K
16	30	Hall	2.5	1	2	LPF2.59K

5. SPECIFICATIONS

SPECIFICATIONS

Mono input channels	
Mic input	Electronically balanced, discrete input configuration
Frequency response	10 Hz to 25 kHz +/- 0.25 dB
Distortion (THD&N)	0.005 % at +4 dBu, 1 kHz, bandwidth 50 kHz
Gain range	+10 dB to +60 dB
Max. input	+12 dBu
Mic E.I.N. (22 Hz - 22 kHz)	-129.5 dBu, 150 Ohm source.
	-132.0 dBu, input shorted.
Line input	Electronically balanced.
Frequency response	10 Hz to 25 kHz +/- 0.25 dB
Distortion (THD&N)	0.005 % at +4 dBu, 1 kHz, bandwidth 50 kHz.
Channel fader range	+10 dBu to -60 dBu.
Max. input	+22 dBu.
EQ	
Low	80 Hz, +/- 15 dB
Mid	100 Hz to 8 kHz, +/- 15 dB
High	12 kHz, +/- 15 dB
Lo Cut filter	-3 dB at 75 Hz, 18 dB/Oct. (100Hz version avaliable)
Stereo input channels	
Line input	Electronically balanced
Frequency response	10 Hz to 25 kHz +/- 0.25 dB
Distortion (THD&N)	0.005 % at +4 dBu, 1 kHz, bandwidth 50 kHz
Channel fader range	+10 dBu to -60 dBu
Max. input	+22 dBu
EQ	
Low	80 Hz, +/- 15 dB
High	12 kHz, +/- 15 dB
Main Mix	
Max. output	+28 dBu balanced on jack
Aux Send max. output	+22 dBu unbalanced
Control Room output	+22 dBu unbalanced
Noise	-112 dB (all channels open, at unity gain)
Digital Effects Processor	256 programs
Graphic Equalizer	
Frequencies	60 Hz, 120 Hz, 360 Hz, 1 kHz, 2.5 kHz, 7 kHz and 16 kHz
Max. boost/cut	+/- 12 dB
Power Supply	
Mains voltage USA/Canada	110~120 V AC, 60 Hz, Power Supply PUL18
U.K./Australia	230~240 V AC, 50 Hz, Power Supply PUK18
Europe	220~230 V AC, 50 Hz, Power Supply PEU18
Japan	100 V AC, 60 Hz, Power Supply PJP18
Power comsuption	40W
Dimensions/weight	
Dimensions (H x W x D)	418x70x390mm (16.46"x2.76"x15.35")
Weight	4.2 kg (without Power Supply)

6. SYSTEM BLOCK DIAGRAM


Channel1
+48V
Lo-z
Hi-z
Insert
Trim
Peak
Low Cut
EQ
Hi
Mid
Fr.
Low
Mute/On
Level
Post
Pre
Eff
Aux
Group/Mast
Pan
Normal/Ms
Pfl Ctl.
CH3,5 SAME AS CH1
Channel2
CH4,6 SAME AS CH2
CH9_10,11_12,13_14 SAME AS CH7_8
*(a&b) Dual Slide/Rot. VR.
*(a&b) Dual SW.
Channel7_8
+4/-10 (a)
+4/-10 (b)
Hi (a)
Hi (b)
Level (a)
Level (b)
Mute/On (a)
Mute/On (b)
Cue (a)
Cue (b)
Eff (a)
Eff (b)
Group/Mast (a)
Group/Mast (b)
Balance (a)
Balance (b)
Post
Pre (a)
Pre (b)
Aux (a)
Aux (b)
Aux Rtn.
Aux Rtn
Cue
LEFT
RIGHT
EFF
GROUP1
GROUP2
AUX
CUE L
CUE R
Sum
Mono
Mono Out
2T Rec L
2T Rec R
Mast L
Mast R
Ear_L
Ear_R
Insert
Eq In
Eq On
Eq Out L
Eq Out R
60
120
7K
16K
Display L
Display R
Level
Ear Out
Ctrl Rm L/Out
Ctrl Rm R/Out
Normal/Ms
Display
L
R
Group1
Group2
Group1 Out
Group2 Out
Ear R
Ear L
Aux
Aux Out
Eff Out
2T Rtn
2T Rtn.
Efx Rtn.
DSP.
Up
Down
Encoder

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